int motorPin1=9; //IN1

int motorPin2=8; //IN2

int motorPin3=7; //IN3

int motorPin4=6; //IN4

int enablePin1= 5; //EN1

int enablePin2= 3; //EN2

int echoPin= 11;

int trigPin= 12;

long duration;

int distance;

int number;

#include <LiquidCrystal.h>

const int rs = 13, en = 10, d4 = 4, d5 = 2, d6 = 1, d7 = 0;

LiquidCrystal lcd(rs, en, d4, d5, d6, d7);

// presetting commands to be called later in the function \*\*\*\*\*\*NOTE THAT FIRST WHEEL IS IN THE RIGHT SIDE\*\*\*\*\*\*\*

//to move robot foward

// power is at the highest to make sure robot is moving foward at top speed

void moveFront(){

  lcd.setCursor(1,1);

  lcd.print("moving foward");

  digitalWrite(motorPin1,HIGH);

  digitalWrite(motorPin2,LOW);

  analogWrite(enablePin1,255);

  //second wheel

  digitalWrite(motorPin3,HIGH);

  digitalWrite(motorPin4,LOW);

  analogWrite(enablePin2,255);

};

//to move robot backward

//reduce power to 200 to make robot reverse at a slightly slower speed

void moveBack(){

  lcd.setCursor(1,1);

  lcd.print("moving back");

  digitalWrite(motorPin1,LOW);

  digitalWrite(motorPin2,HIGH);

  analogWrite(enablePin1,200);

  //second wheel

  digitalWrite(motorPin3,LOW);

  digitalWrite(motorPin4,HIGH);

  analogWrite(enablePin2,200);

};

void stop(){

  lcd.setCursor(1,1);

  lcd.print("000000000000000000");

  digitalWrite(motorPin1,LOW);

  digitalWrite(motorPin2,LOW);

  analogWrite(enablePin1,255);

  //second wheel

  digitalWrite(motorPin3,LOW);

  digitalWrite(motorPin4,LOW);

  analogWrite(enablePin2,255);

};

//to turn robot left

//power reduce to 100 to ensure robot turns at a much slower rate

void turnLeft(){

  lcd.setCursor(1,1);

  lcd.print("turning left");

  digitalWrite(motorPin1,HIGH);

  digitalWrite(motorPin2,LOW);

  analogWrite(enablePin1,100);

  //second wheel

  digitalWrite(motorPin3,LOW);

  digitalWrite(motorPin4,HIGH);

  analogWrite(enablePin2,100);

};

//to turn robot right

//power reduce to 100 to ensure robot turns at a much slower rate

void turnRight(){

  lcd.setCursor(1,1);

  lcd.print("turning right");

   digitalWrite(motorPin1,LOW);

  digitalWrite(motorPin2,HIGH);

  analogWrite(enablePin2,155);

  //second wheel

   digitalWrite(motorPin3,HIGH);

  digitalWrite(motorPin4,LOW);

  analogWrite(enablePin2,155);

};

// the setup function runs once when you press reset or power the board;

void setup() {

 // Serial.begin(9600);

  pinMode(trigPin,OUTPUT);

  pinMode(echoPin,INPUT);

  lcd.begin(16, 2);

  pinMode(motorPin1,OUTPUT);

  pinMode(motorPin2,OUTPUT);

  pinMode(motorPin3,OUTPUT);

  pinMode(motorPin4,OUTPUT);

  pinMode(enablePin1,OUTPUT);

  pinMode(enablePin2,OUTPUT);//pinMode(13, OUTPUT);

  number=1;

}

// the loop function runs over and over again forever

void loop() {

  number= number+1;

  digitalWrite(trigPin,LOW);

  delay(2);

  digitalWrite(trigPin,HIGH);

  delay(10);

  digitalWrite(trigPin,LOW);

  duration = pulseIn(echoPin,HIGH);

  distance = duration \* 0.034/2;

  lcd.setCursor(0, 0);

  lcd.print("Distance is: ");

  lcd.println(distance);

  if(distance>=500){

  moveFront();

  delay(1000);

  }

  else{

    if(number % 2 == 0 || number % 3 == 0){

      stop();

      delay(500);

      moveBack();

      delay(1000);

      stop();

      delay(500);

      turnRight();

      delay(1000);

    }

  else{

    stop();

    delay(500);

    moveBack();

    delay(1000);

    stop();

    delay(500);

    turnLeft();

    delay(1000);

  };

  };

  delay(2000);

  };